ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

A STUDY ON THE EFFECTIVE USE OF EXPLANATION TECHNIQUE BY GEOGRAPHY TEACHERS IN SELECTED SECONDARY SCHOOLS IN ADDIS ABABA

A Partial Fulfilment of the Requirements for the Degree of Master of Arts in Curriculum and Instruction

BY
ELIAS NASIR

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Approval of the Board of Examiners

Ambaye Tsehaye
Chairman, Department of Graduate Committee

Azeb Desta
Advisor

Abdurrahman M. Korram
Examiner-External

Marew Zewdie (Dr)
Examiner-Internal

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ABSTRACT

It is believed that the quality of classroom instruction largely determines students' achievement in the learning process. The issue of testing instructional effectiveness has been addressed by different researchers in the area of teaching in many forms and contents. In view of this, the purpose of this study was to examine effective use of explanation technique by geography teachers in selected Secondary schools in Addis Ababa.

To this effect, sixteen geography teachers were selected from four secondary schools in Addis Ababa. Observation check-list having various categories of explanation technique was set as the data gathering instrument. The data then procured through classroom observation and analysed using statistical methods such as percentage distribution and chi-square statistical test for these statstical method are found appropriate to the study.

The results of the study revealed that the extent to which teachers use explanation was confined to presenting mere factual contents. It was also indicated that appropriate selection and use of explanation skills was not ascertained. Furthermore, teaching qualities that encourage integrative learning were so minimal. Finally, it was found out that descriptive explanation has been the most frequently used explanation type.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Today, teachers have entered a period of professional competence. As professionals, they are expected to know the nature and requirements of the teaching profession. For a teacher, to become a professional, it is all important that he must have well defined educational training for teaching.

It is with this regard that Azeb (1984:37) mentioned, education as an applied science is one of the requirements for a professional teacher. Needless to say, unless one is qualified in the applied science of education, he cannot be a qualified teacher or professional educator.

The above stated fact implies that the ability to teach, like the ability to do any serious thing, is usually an acquired expertise derived from a correct knowledge of what and how is to be done in teaching. Inspite of cliche, most master teachers are made not born. As a result, the only safe way to become master teacher is to study carefully the why and how of educational processes and to practice them diligently (callahan, et.al, 1988: 176).

What makes a teacher effective in teaching, in the first place, is the question of whether he has the essential training in the skills and practices of teaching. Eventhough

there are some attributes of teaching that involve personal talents, they never take shape and develop without particular training programs (Combs, 1972: 286).

Nowadays, there is a wide spread concern about the effectiveness of teaching, and many researchers have addressed themselves to it. As Aspy (1972:21) pointed out, the effectiveness of teaching among other things, may rely upon the relationship between what the teacher acquired from training background and his actual performance in classroom teaching.

Teaching is effective to the extent that the teacher acts in ways that are favourable to the development of basic skills, understanding, desirable attitude and adequate personal adjustment to pupils. Therefore, it could be said that the effectiveness of teaching is a function of practical teaching activities and skills that the teacher displays in particular classroom (Sharma, 1990:499).

The aforementioned points with regard to teaching effectiveness may be put as Azeb (1984:57) summarizes that the teacher, to be effective, needs to posses personality traits that are effective in meeting students' needs, in diagnosing learning difficulties, and in remedying emotional difficulties of students.

It is the also a fact that teaching is an activity that requires continuous improvement through systematic assessment

of the actual teacher performances. On this point Mckean (1971:143) remarks that the process of evaluating teacher's activities as they are perceived in the actual classroom is essential to promote better and effective teaching.

This means that the teacher needs to obtain evidences which allow judgements to be made regarding whether or not he and his class are achieving the desired purposes. He also needs to have data by which he may appraise the teaching methods and techniques he used to interact with his pupils.

Moreover, as Friedman et.al, (1980:4) stress, teachers need new skills, knowledge and attitude if they are to perform their duties competently. They are expected to adopt to new environments as well as to implement new instructional methods and techniques . This could be realized when the strength and weakness of the existing instructional processes in classroom settings are investigated through classroom researches.

Nevertheless, one of the problems linked with teacher education program is that unawareness of teacher educators about the performances of their graduates in the real world of classroom teaching. This is to mean that follow-up study of teacher education graduates while they are undertaking duties in the actual classroom is not given due consideration. As a matter of fact, to improve teaching in particular and teacher education in general, follow-up study of teachers' performance through classroom research is of primary importance (Anderson and Burns, 1989; Friedman and his associates, 1980).

As many classroom research outputs indicate, the individual teacher in a classroom serves as a "key" element in the learning of pupils. Though learning results from the activities of learners, the teacher has an impact at all pupil's class-room learning. That is, learning at any formal circumstance is mediated by the teacher's classroom behaviour. In other words, teaching performance is key to the learning of students. It is what the teacher does in interacting with his students that determines what students learn and how they feel about learning (Dhand, 1991:4; Medly, 1969:39; Bloom, 1972;339).

The above mentioned facts may imply that in all instances of the teaching-learning process in schools, the fundamental concern is the learning of pupils. To achieve this purpose, how teaching is conducted would be of great importance. Hence, as Tassew (1993:4) says:

> It is logical to say that improvement in learning process essentially requires improvement in the nature of teaching which again involves improvement in the teaching behaviour of teachers.

Therefore, one of the common approaches to the study of teaching effectiveness is the selection of general dimensions or characteristics of teaching behaviour that are assumed to bring certain effects on students. The assumption here is that what teachers do in classroom does affect students (Ornstien, 1985: 27-28).

Techniques of teaching are the day to day activities which the teacher may design for particular lesson, and as a result, they constitute certain aspects of teaching behavior that could be studied through classroom research. As Dhand (1990) mentions, teaching techniques can be thought of as specific steps, and procedures which affect the learner's encoding process, that is, how the student will learn the desired information, concepts and skills. Thus, techniques of teaching are developed with the intention of providing practising teachers with opportunities of selecting, adapting, developing, experimenting and improving specific steps and procedures in the teaching-learning process.

One of the commonly used techniques of teaching at different levels of instructional settings is explanation technique. The extent to which the teacher explains concepts, ideas, rules, relationships, etc., would undoubtedly affect students' learning in particular classroom. With this point Perrott (1982:33) mentions that as many research evidences suggest explanation is an aspect of teacher behaviour which has a considerable influence on learners. Moreover, callahan et.al, (1988:177) state that of all available teaching techniques, probably the most commonly used in secondary schools is explanation technique. Furthermore, explaining lessons and assignments clearly and thoroughly, and using examples are among the personality traits of best liked teachers (Azeb, 1984:57)

It is obvious that there are many occasions at which the teacher needs to explain new ideas or facts and to explain how some mechanisms work. Risk (1968: 250-1) stresses that explanation is a highly required technique of teaching if the teaching-learning process is to be successfully conducted.

It is further noted that verbal explanation is one of the most efficient ways of teaching subject matter that it leads to sounder and less trivial knowledge. There is no doubt that explaining activities is among the most valuable tools for teachers (Ausubel, 1968: 86-87).

Explanation is considered to be the basic technique of teaching which gives learners information and ensures remembering. Its role is also to equip students with knowledge that will provide a foundation for higher thinking. It arouses pupils to think for themselves and to awaken their power to observe, to remember, to reflect and to combine (Callahan et.al, 1988:177).

The fact is, eventhough such studies of teaching behaviour have become part of the priority areas of teacher education program in many countries of the world, little has been done in our realities. Regarding the research practices in the areas of teaching and teacher education in Ethiopia, one may note that a systematic attempt to analyse teacher's work and to identify teaching qualities is very limited. It is at its infancy (Tassew, 1993: 5).

Thus, it seems essential for teacher educators to investigate and analyse teaching effectiveness through classroom research if improvement is sought in the existing instructional processes in schools in particular and teacher education programs in general.

1.2. Statement of the Problem

It is agreed that the ultimate purpose of any teaching process is to bring the desired change of behaviour in students. The teacher's teaching process, thus, has a paramount importance in eliciting learners' interest in the learning task. Which in turn is instrumental in serving this purpose.

It appears that there has been an increasing recognition by educators of the importance of the teaching process on the achievement of learners. This means that how pupils learn to a larger extent depends up on how teachers present the required learning experiences (Kyriacou, 1992: 56).

The move towards a greater emphasis on the effectiveness of the teaching process is part of a trend towards making learning more active experience. This is so not only because the effectiveness of the teaching process can foster greater understanding, but also because of its beneficial effect on motivation and attitude towards learning (Ibid).

The basic task of effective teaching, is therefore, to set up a learning experience which involves pupils engaging in mental activities that bring about changes in pupils' cognitive structure. Hence, teachers need to be sensitive to the ways by which different teaching methods and techniques foster the most appropriate mental activity of pupils.

One of the main ways by which students' learning is fostered is the teacher's effective use of explanation technique. In line with this point Waterhouse (1983;62) says that "teacher explanation is the most central stock-in-trade of teaching and serves a number of functions and purposes which are often interrelated."

The teaching of facts, rules, and action sequences is most efficiently achieved through a process of explanation. Though explanation is synonymous with direct teacher instruction, it is wrong to limit explanation in teaching to teacher centred strategy. It rather involves exemplification and opportunities for practice and feedback (Borich, 1988:143). Thus, it serves as a vital means of tostering understanding which facilitates and stimulate learner involvement in participation and practice.

The importance of explanation in teaching is paramount even in the highly student-centred teaching learning process. So as to engage students in independent learning activities, it seems essential that explanation of certain steps and

procedures should be made by the teacher. In line with this point Borich (1988:143) says that explanation is a multifaceted presentation that involves not only large amount of verbal talk or lecture but also teacher-Student interactions involving questions and answers, review and practice, and the correction of students' errors.

Nevertheless, explanation as one of the teaching behaviors has been surprisingly little investigated in the actual teaching-learning process (Chaudron, 1988: Duffy, et.al, 1986; Dagher and Cossman, 1992; Herrman (1989) Book et.al, 1985). It is this reason that led this researcher to explore the extent to which effective use of explanation technique is made by secondary school teachers in Addis Ababa with particular reference to geography sessions. The study, thus, attempts to answer the following basic questions.

1. To what extent do teachers use explanation in teaching subject matter contents?
2. What skills do teachers employ in making explanation?
3. What are some tactical elements of teaching employed by teachers in making explanation?
4. What are the most frequently used explanation types?

1.3. Significance of the Study

The ultimate purpose of this study is to examine the extent to which geography teachers in selected Addis Ababa

Secondary Schools use explanation technique in actual classroom teaching. The results of this study may be expected to provide the following contribution.

- The study may encourage teacher educators to develop the skills and habits of classroom research on different variables of actual teaching-learning process.

- The results of the study may encourage the idea of equal emphasis on both theoretical and practical aspects of teaching while teacher trainees are in pre-service training program.

- The findings of the study may also initiate concerned bodies of the Ministry of Education and Teacher Training Institutes to organize workshops and seminars for the working teachers on the current instructional issues in general, and in their use of explanation technique of teaching in particular.

-Finally, this preliminary study may serve as a beginning source for other researchers who may be interested in related studies.

1.4. Delimitation of the Study

The study is confined to explore the extent to which explanation technique of teaching is effectively used by geography teachers in four selected secondary schools in Addis

Ababa. Therefore, the findings obtained and conclusions made reflect the use of explanation technique of teaching geography in the four selected government secondary schools.

1.5. Limitations of the Study

In order to have first-hand information about effective use of explanation technique, continuous classroom observations were vital tools. In this study, however, each sample teacher was observed only three times in his classroom. Due to departmental commitments, it was not possible for the researcher to have some more observation sessions. Due to time factor again, other teachers of different subject areas were not included to obtain a more meaningful picture.

In addition, due to absence of relevant materials related to the study in Ethiopian context, the researcher has been forced to rely on foreign sources. Inspite of these however, the researcher has attempted to make the study as complete as possible.

1.6. Definition of Key Terms

Explanation:- It is a set of interrelated statements made by teacher inorder to increase the understanding in pupils about ideas and concepts. It is related to lesson presentation, demonstration, description of important comments and rhetorical questions. It also involves exemplification, discussion and appropriate use of audiovisual materials.

Explanation Technique:- It refers to the specific steps and procedures involved in the process of explanation in the teaching-learning process.

Teaching-behaviour:- It is a pattern of acts or performances or deeds which are in the chain of classroom events. It is teaching skill that gives teaching performance logical operation.

Techniques of Teaching:- These are specific procedures, ways, steps and manners that a teacher follows and applies in the teaching-learning process so as to attain specific learning outcomes.

Teaching-learning Process:- It is a procedure of teaching and learning where subject-matter to be taught is imparted by the teacher and acquired by students during classroom instruction.

Tactical Elements of Teaching: Refer to specific teaching acts or performances that may facilitate logical operations of the entire teaching-learning process. For instance, they involve teacher's focusing behavior, stimulus veriation, etc.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

2.1. Research Trends on Teaching and Teaching Behaviour

Much of the recent research on the teaching-learning process had their roots in the early research works that took place during and since early 1950s. The primary purpose of such research was to ditermine the criteria that could be used to identify effective teachers and effective teaching (Anderson and Burns, 1989:338).

As many educators and research scholars suggest, the study of teaching has received strong attention for the reason that teaching behaviour is found to be one of the most important presage variables that would determine the learning aspects of pupils (Tassew, 1992:78). Regarding this point, Jaeger as cited in Bellon et.al. (1992:4) mentions that teaching is a field of study which constitutes the raw materials for inquiries of many kinds. As a result, researchers can probe in many directions in an effort to understand teaching and teaching behaviour, and to develop a reliable knowledge base that would apply to further study of teaching.

To this end, in the past few decades a number of investigations were carried out to establish relationships among factors like teacher characteristics, teaching behaviour, teaching strategies and learning outcomes. The underlying assumption for these investigations was,that to a greater extent the quality of pupils' learning is highly dependent on the quality of instruction that teachers provide (Anderson and Burns, 1989:339; Anderson. 1991:13-14)

The above mentioned fact may imply that inorder to substantially improve the quality of education that students receive, the study must be made on what happens in classroom situations. That is, it must be known through research that what portions of the curriculum actually find their way into the classroom and effectively dealt with.

Most research efforts and resources that were introduced during the last few decades were to provide adequate information for constructing models of teaching which would have direct impacts on the learning of pupils (Bellon et.al. 1992:5). Doyle (1983:3) further stresses that such researches were based on the belief that effective teacher behaviors could be identified and taught to others so that pupils' achievement in the learning process would be maximized. Specific target areas that teachers need to improve can also be identified through such an investigation into the teaching behaviour.

The aforementioned facts reveal that research in classroom context contributes much to the improvement of the entire teaching-learning process. The effect of classroom research on the improvement of instructional process is much more significant since it is focused on understanding of the natural rhythms of classroom life.

Among other aspects of teaching or teacher behaviour that require thorough investigation through classroom research is teacher explanation which is the teaching technique with multi purposes. Several studies make it clear that teacher's explanatory behaviour is by no means rare in classrooms. It is further indicated that explanatory behaviour can involve many of both verbal and non verbal elements that may directly determine the patterns of the teaching-learning process. (Smith and Meux, 1970; Daghe and Cossman, 1992).

Nevertheless, as one of the aspects of teaching behaviour, little is known about how teachers explain curricular contents to students and what effect this has on students' cognitive processing. Todate, little descriptive analysis of teacher's explanation is available. Though explanation is often assumed to be an important aspect of instruction, little research has been done to describe it. Hence, little is known about how effective teachers explain, and there are few descriptions of effective explanation which prospective and inservice teachers can use as guideline (Duffy et.al. 1986:197-212; Nunan, 1989:27).

2.2. Explanation: A Brief Conceptual Framework

The term 'explanation' from instructional or teaching context has been viewed by different writers in the area of teaching in almost similar ways. Explanation as stated by Cooper (1986:121) refers to planned teacher talk designed to clarify any idea or procedure not understood by students. He further states that it is one of the critical techniques which has a paramount effect on student learning. Cole and Chan (1994:126) said:

> Explanation is a verbal, diagrammatic or symbolic interpretation of something. It usually involves "telling why" rather than just showing. It also involves filling gaps in understanding through question and answer and reason giving.

Explaining is facilitating understanding to another. It is a creation of new connections between facts, between ideas, and between facts and ideas. It is creating a relationship between state of affairs so that it facilitates understanding that may lead to generalization (Brown, 1978:7; Perrott, 1981:33; Brown and Atkins, 1988:19). In line with this point Anderson and Pearson (1984:255-6) contend that learning occurs when a person encounters experiences which can cause a new desire for learning. A teacher's function is to orchestrate instructional situation to ensure that students encounter experiences that may create new thinking in ways specified by the curriculum. To this end, one of the major teaching techniques to orchestrate instructional situations so as to create new thinking in students is giving explanation. That is, teachers communicate to students about curricular outcomes

in the belief that their explanation will clarify the academic experiences and expedite learning (Duffy et.al. 1986:198)

Here, one has to note that explanation is not confined to a mere teacher talk or one way instructional process. With this regard Bellon et.al. (1992:24) argue that teachers often give explanation as part of the development of new content or in response to student questions. A good explanation is much more interactive than a mere presentation. Teachers must elicit and respond to students efforts to comprehend new phenomena. This means that both the teacher and students have active roles to play in constructing explanation that will help students comprehend new concept. These roles are presented in the figure below.

Figure 2.1. Teacher and students roles in interactive explanation

EXPLANATION

TEACHER	STUDENTS
- Gives explicit information	- Forward their thinking
- Provides factual and procedural knowledge	- Delineate their reasoning process
- Presents information that is conceptually accurate, explicit meaningful and useful.	- Restructure their knowledge to accommodate new learning
- Model the reasoning process.	- Apply new process in real situation

Adapted from Bellon et.al. (1992:249)

From what is contained in figure 1, one can realize that the knowledge that students bring to a lesson and their thinking deterime to a large extent what they learn. That is, students play an active role in learning, mediating and restructuring information so that it will fit into their own personal knowledge. In line with this point Berliner (1987:290) says:

> ... Good explanation occurs when teachers help students generate personal meaning, carefully communicate what to focus on, are explicit about how students should think, about what they are focused on, and emphasize the most salient ideas of content to be explained.

Explaining behaviour is the teaching technique that needs to be very well planned so that the required learning can easily be achieved by the learners Cooper (1986) suggests the following procedural steps that help in planning effective explanation.

1. Identifying the purpose of explanation.
2. Preparing a definition of the key ideas (processes or procedures)
3. Illustrating the lesson with the help of examples or demonstrations.
4. Summarizing main points of the lesson (p.125).

All the preceding discussions may reveal that explanation refers to those actions or behaviour designed by teachers so as to bring a lesson presentation to an appropriate understanding by learners. That is, teachers use explanation to help students bring things together in their own minds to make sense out of what has been going on during the course of the presentation.

Regarding this idea many researchers into the psychology of learning show that learning increases when teachers make conscious effort to help students organize the information presented to them and to perceive relationships based on that information. Explanation is among the teaching techniques by which much of teacher's

effort is realized in facilitating learning (Cooper, 1986:128; Gage and Berliner, 1975: 524).

2.3. Significance and Purpose of Explanation

It is clear that teachers spend a great deal of their time talking, whether it is lecturing, explaining, giving instruction, asking questions or directing whole class discussion. Of all these teaching acts, giving explanation is considered to be the most important quality of effective teaching. Teacher's ability to explain points clearly fosters greater educational attainment than any other teacher characteristics (Kyriacou, 1991: 35).

Teacher explanation promotes the development of the thinking skills of pupils by developing their ability to interact and reason out, and by developing their accuracy in observing the learning task. It certainly enhances all other teacher activities that guide students towards the attainment of lesson objectives (Salem, 1995:127; Kyriacou, 1991: 35).

Explanation serves a number of functions at any instance it may occur in lesson presentation. For instance, explanation at the start of the lesson elicits and sustains pupil's attention and interest in the lesson. Establishing such positive attitude at the beginning of the lesson provides a good spring board for what follows. In other words, to create a positive mental set and to ensure that pupils are paying attention when the lesson begins, it seems important to

explain the 'why' and 'how' of that particular lesson (Kyriacou, 1991:36).

Furthermore, explanation is a useful teaching technique that may alert pupils to any links with previous lessons inorder to best prepare them for what is to follow. Explanation in such matters may include practical aspects concerning the equipment students need to use or the place they are expected to work in (Ibid).

Regarding the purpose of explanation cooper (1986: 122) identified the following points:

1. To show a direct cause and effect relationship.
2. To show that a particular action is governed by a general rule or law.
3. To illustrate a purpose or process.
4. To show that the intent of an action or process.

Similarly, Duffy et.al. (1986:197-212) show that explanation as a technique of teaching serves, several purposes of which some are highlighted in the subsequent paragraphs.

a. Explanation as Responsive Information Giving Technique

Virtually all lesson discourses consist of repetitive interactive cycles between teacher and students. What

distinguishes explanation from other instructional discourses is its focus on giving responsive information. Responsive information giving is characterized by the teacher explanation in such a way that he provides information about the academic task so that the students react to the information presented (Duffy et.al. 1986:1997).

In elaborating further about responsive information giving, Doyle (1983:174) says that both students and teacher are mediators in explanatory cycles. This means that students mediate on the information that teachers provide by processing it through their distinctive background experiences, restructuring it in unique ways and arriving at understanding that may be different from what the teacher intended. The teacher, in turn, mediates by assessing students' responses and by providing ellaborated information designed to further refine students understanding in ways more consistent with the intended curricular outcomes.

From this fact one can realize that in the case of responsive information giving the teacher is not simply introgating. He rather notes students' responses and assesses their misunderstanding so that he keeps them at the right track.

b. Explanation as a Technique of Developing Awareness in Students

One of the major purposes of instructional explanation is to develop awareness about the usefulness and importance of

what was presented during the lesson. Developing awareness empowers students by putting them in cognitive control of their own thinking. In other words, rather than simply identifying the right answer, students understand how they got the right answer and can use that understanding to impose control over subsequent situations (Roehler et.al. 1986: 7-10)

In order to develop awareness in students effective teachers make explicit explanation during the early stages of the lesson about what is to be learned, when to use it? and how to do it? As the lesson proceeds, they provide reminders, revisions and summaries regarding what is being learned, when it will be used, and haw to do it; and they will engage students to discuss these. In short, they make students consciously aware of the lesson content (Duffy et.al. 1986: 204-5).

Above all, there is a significant positive relationship between explicit explanation and metacognitive awareness. That is, during explanatory processes the teacher assesses students understanding of the principles and corrects their misunderstanding. This is an instructional skill which seems to be important for increasing student awareness (Book et.al, 1985:35)

c. Explanations as a Technique of Providing Assistance.

Effective teachers help students construct meaning about the intended curricular outcome during their explaining

process. They do this by presenting information gradually and organizing it sequentially. That is, as mentioned earlier, verbal explanation progresses through sequenced instructional interactions between teachers and students. Hence, effective teachers expedite this progression by moving gradually from explicit teacher statements about what is to be learned to student accommodation of the information contained in those statements (Duffy et.al. 1986:208).

To sum up, explanation serves a number of significant purposes in classroom teaching. As many scholars claim, "it is the very purpose of teaching itself". Hence,a number of research on the area of teaching strongly suggest to assign explanation a prominent place in classroom instruction and advise that teachers should be careful to accurately reflect their character in giving explanation (Dagher and Cossman, 1992: 361).

2.4. Skills of Giving Explanation

As clearly indicated in the preceding review of the related lierature on the concept and purpose of explanation, the crucial point was providing clarity and facilitating the understanding of the lesson by the learner. According to Anderson (1991:69) teachers can use several skills to increase the likelihood that explanation they give to students will attain clarity. Some of the most important skills particularly that facilitate clarity of interactive explanation and the corresponding student understanding are described as follows.

2.4.1. Exemplification

The use of examples is basic in teaching and is a skill commonly used in clarifying explanation. In this regard Perrott (1981:37) stresses that effective teaching of new concepts, relationships or principles depends on the teacher's ability to use examples so as to enable learners to comprehend these new concepts or relationships. Mortorella (1972) also conceives that the use of examples in teaching enables pupils to organize and store similar pieces of information efficiently. Examples speed up and simplify communication between teachers and students.

Examples are more relevant and fruitful if they are within the experiences and understanding level of the learners. That is, examples that have personal and vocational relevance are much more appropriate for giving explanation (Brown and Atkins, 1988:23).

2.4.2. Using Audiovisual Materials

Giving explanation is much more difficult than making factual reports. Since explanation in certain cases is concerned with clarifying complex relationships, it will not be as easy as presenting simple facts. Hence, using audiovisual materials may simplify the task of explaining such complex relationships (Perrott, 1981:34).

The main use of audiovisual materials in teaching is to improve clarity of lesson presentation. That is, many topics and subtopics of the lesson might have networks which may need clarity through diagrams or maps. Ideas which are linked through such visual materials are likely to be retained in the long memory of learners. It is, therefore, worth spending sufficient time thinking about a visual presentation of key concepts, relationships and process (Brown and Atkins, 1988:26).

2.4.3. Questioning

Explaining often goes hand in hand with questioning. It is particularly important to ensure that the nature and complexity of the language used by the teacher should be at an appropriate level for pupils to understand. Questioning skill as a central to the repertoire of effective explanation serves to encourage thought, understanding of ideas, procedures and processes. It also helps to check understanding, knowledge and skills that are acquired by the learners (Kyriacou, 1991:36-7).

2.4.4. Comparing and Contrasting

Comparing and contrasting of two or more view points is one of the necessary skills that facilitates instructional explanation. This skill requires the teacher to identify and describe essential similarities and differences or advantages

and disadvantages. This skill as noted by Brown and Atkins (1988) is useful for showing students how to tackle comparative problems. It is also useful for drawing together and comparing different approaches or theories that might have been presented during course offerings (p.30).

2.4.5. Feedback

Feedback is the process of giving information to students about the status of their responses. It is the teaching function by which the teacher responds to students' answers and corrects their errors. Bellon et.al. (1992) stress that research on teaching has confirmed the positive effects of providing students with knowledge about the correctness of their responses and academic progress. It provides a timely and accurate assessment of learning.

Providing feedback is one of the teaching skills that facilitate explaining process. In elaborating this point Gagne (1985) suggests that students questions, comments and responses that occur during explaining process provide teacher with opportunity to give informative feedback. Although feedback may be given as part of other instructional settings, it seems to be most effective as part of instructional explanation (Bellon et.al. 1992: 277; Zahoric; 1987:419)

Feedback is the type of substantive interaction that often occurs at a teachable moment. Hence, it is strongly and consistently related to student achievement. Thus, giving

feedback is a critical instructional skill that is required to facilitate explanation (Bellon et.al. 1992:285).

It is advisable, therefore, that teachers need to be aware of the types and sources of feedback that are essential in various instructional interactions. It is important that potential sources of feedback should not be over looked (Ibid). Figure 2.2 below shows forms and sources of feedback.

Figure 2.2. Forms and Sources of Feedback

Feedback

Types			Sources	
Oral	**Written**	**Nonverbal**	**Human**	**Materials**
Individual	**Queezes**	**Gestures**	**Teacher**	**Books**
Or	**Tests**	**motions**	**peers**	**Answer Keys**
Group debate	**coments**	**Eye Contact**	**Aids**	**Computer**

Adopted from Bellon et.al. (1992-285)

2.5. Some Necessary Tactical Elements of Teaching for Effective Explanation

Some research findings have shown that if teachers spend considerable time in providing explanation, then high student achievement is likely to occur. Students typically say of effective teachers that they:-

> made the subject clear. They are patient to explain the subject and we are always able to understand what it is they are

trying to tell us (Cole and Chan, 1994:145)

Hence, the quality of explanation made by teachers is of critical importance to enhance understanding of learners. It has to be noted that the quality of explanation in one way or anothermay depend on the nature of tactical elements of teaching that teachers manifest in actual classroom teaching.

It is obvious that a teacher is first of all a person with certain qualities which influence his actions in classroom. This means that his relationship with students and his basic approach to teaching will depend largely up on the nature of particular teaching tactics he reflects in class. These teaching qualities among other things, may include naturalness, friendliness and sense of humour that will help him be accepted by his pupils (Lawman, 1987:7)

Another most important qualities of effective teacher is his flexibility in teaching by making indirect influence on his students. Such influence is characterized by a pattern of teacher behaviour which is accepting and clarifying pupils' feelings, and accepting and using ideas of students (Azeb, 1984: 65-66).

It is believed that this kind of influence expands students independent thinking. It engages them more in discussion and stimulates them to ask thoughtful questions that may require detail explanations by the teacher.

Educators claim that qualities of teaching are somewhat complex and diversified though there are some specific qualities in which good or effective teacher is superior (Ibid:64). As already mentioned, these teaching qualities may be determined by the appropriate use of the following tactical elements of teaching during actual classroom instruction.

2.5.1. Setting Induction

It is one of the teaching tactics that apears to indicate activities which precede a given learning task so that the attention of learners is focused on what is to be learned. This means that teachers can influence pupils' behavior best when they tell them in advance what is expected of them. Dececc (1968) calls this 'the expectancy function of teachers' while Gage and Berliner (1975) speak of advance organizers. Setting induction is the teaching quality which gives adequate preparation for learners so that they are able to come near to instructional objectives. To sum up, it is the teaching quality that involves teacher's way of intentionally directing pupils' attention (Perrott, 1981: 21-22)

2.5.2. Creating Links Between the Various Parts of the Lesson.

It is one of the common types of teaching tactics by which smooth transition from known or already covered material to new or unknown material is made. It incorporates statements that link the various sections of the lesson to one another

(perrott: 22). Further ellaborating this teaching quality Cole and Chan (1994) say that students are advantaged by teachers who draw together threads of subject-matter and show the way in which various elements of a lesson are integrated. More important in teaching is showing the way in which composite parts of subject-matter and examples are presented as an integrated whole. This is because, integrated frameworks are essential if students are to gain real understanding of the content being presented by the teacher (p.145)

2.5.3. Varying the Stimulus

It is a fact that an interesting subject may be made tedious by the manner in which it is presented. Research findings indicate that animated behavior on the part of the teacher stimulates the attending behavior of pupils and enhances learning. Therefore, varying the stimulus as a teaching tactic is based on the theory of learning which states that uniformity of the perceived environment tends to lead pupils into mental inactivity, while changes in the perceived environment attract their attention and stimulate mental activity (Perrott: 28-30).

Stimulus variation in teaching involves both verbal and non-verbal behaviors of teachers. That is, variations in the quality of expressiveness, tone and rate of speech can increase animation. Planned silence or pausing can also be most effective in capturing attention by contrasting sound with silence (Ibid).

2.6. Types of Instructional Explanation

Researchers on the area of instruction remark several ways of classifying explanation. Brown (1978) for instance, identified three main types of explanation.

These are:

a. Interpretive explanation:- Explanation of this type specifies the central meaning of a term or statement or it clarifies an issue.

b. Descriptive explanation:- This types of explanation describes factual contents and pinpoints structural schemes.

c. Rational or reason giving explanation:- This explanation involves principles or generalizations, motives, or values that may give answers to the 'why" questions (p.9). Reason giving explanation also involves giving support to a claim that has been made to compel others to accept that claim (Daghar and Cossman, 1992: 364). Brown and Atkins (1988:20) pointed out that these types of explanations approximate to the questions of 'what'? 'How'?, and 'Why'? respectively.

In addition to the above mentioned explanation types, Dagher and Cossman (1992: 364-6) added some more types of explanations which are described as follows.

a. Analogical explanation: It is the type of explanation in which unfamiliar phenomenon is explained in relation to the familiar one.

b. Functional Explanation:- A phenomenon is explained interms of its immediate function (consequence).

c. Practical Explanation:- It is an explanation that involves instructions as to how to perform physical or mental operations.

d. Cause-effect explanation:- This explanation involves brief statements that may implicitly or explicitly indicate cause-effect relationship.

CHAPTER THREE

METHODS AND PROCEDURES OF THE STUDY

The descriptive Survey method of research was employed to approach the problem. This method is appropriate mainly to gather data related to the problem under study. The population and sampling procedures, data gathering instrument, and scoring and analysis of responses are also incorporated.

3.1. Population and Sampling Procedures

The population of this study is geography teachers in Addis Ababa Secondary Schools. The purposive sampling technique was used to select manageable size of population that fits the nature of data gathering instrument (Observation). Cohen and Manion (1992:103) argue that in purposive sampling, the researcher builds up a sample size that is satisfactory to his specific needs by picking the cases to be included in his sample. This samplining technique is particularly useful in research designs in which observation is used as data gathering instrument.

On the basis of the above mentioned fact, the researcher intentionally selected 16 Geography teachers from four secondary schools in Addis Ababa. That is, four teachers from each school were represented. The selection of schools was also purposely made on the basis of their conducive nature for

the researcher, and they were Menelik II, Yekatit 12, Entoto and Addis Ketema Secondary Schools. The sample size is inclusive of teachers teaching from grade 9-12 in the above mentioned schools.

3.2. Data Gathering Instrument

The main purpose of the study was to make an investigation into salient features of explanation technique as used by Geography teachers in selected secondary schools in Addis Ababa. In order to get the required information, observation was used as a data gathering instrument.

Observation as one of the research tools could serve a variety of purposes. When particularly used in classrooms, it opens up a range of experiences which may became part of the raw materials for researchers. There is no substitute for direct observation as a way of finding out about the teaching-learning process in classrooms. certainly, if one wants to enrich his understanding of teaching and learning, he needs to spend time looking into the classrooms (Nunan, 1989:27; Wajnryb, 1993:1). Similarly, Avalos and Haddad (1981:61) said:

> Insights into the teaching process and interactions of its variables can probably best be gained by ... observational techniques. On the basis of information gathered through observation, it might be possible to suggest actions to be experimented and evaluated.

To carry out observation, the following steps were taken.

1. Observation criteria or observation checklist that incorporated various categories of explanation was set by adopting the models developed by Brown, 1978; Dagher and Cossman, 1992; and Perrott 1981. That is, the researcher developed an integrated observation check-list of these models.

2. This observation check-list was judged and reviewed by 10 colleagues from the department of curriculum and instruction regarding its validity to measure explanation technique.

3. Three observers were trained in how to use the observation check-list and how to tally findings in it. The advantage of using a tally mark is that observation can be made by any one who got appropriate training with no need of laborious task of recording and transcribing the interaction patterns in the classroom (Nunan, 1989:77-8). The observers were knowledgable both in pedagogics and the subject: Geography. The training mechanism for observers was to carefully orient them on the entire observation check-list for four hours. And then they practised how to record the required information in four Geography Sessions (Grade 9-12) in Higher 12 Secondary school. This kind of training observers accord with the assertion of Hilum and Cane

(1979:43) which briefs that the training of observers is a crucial factor to increase observer agreement to the maximum possible. With such training and practice, the difficulties that observes may encounter in recording findings will be reduced, where up to 70 categories are used in observation checklist.

4. A tryout of the instrument was made to determine its reliability when used by observers in 8 Geography sessions of grade 9-12 in Higher 12 secondary school. Then, the reliability was determined by computing correlation coefficient of scores recorded by each observer in two sessions of each grade level (9-12) as summarized in table 1 below. See appendix-B (1 - 4) for the detail of the calculation.

Furthermore, the interrator correlation coefficient is also high (0.96). This shows that the checklist is consistently used by different rators in different sessions. Then, it can be concluded that the instrument is reliable.

5. Finally, after taking the comments of judges and the reliability coefficient into account, necessary improvement of the instrument was made. And then, a single teacher, was observed by 3 observers using the standardized checklist for 3 consecutive periods. Thus, a total of 48 periods were required to observe 16 sample teachers of the study.

3.3. Method of Data Analysis

All the basic questions (see chapter one) were tested based on the responses procured from the observation checklist. An observer's scores were determined by counting the tally marks. After summing up the tally marks , percentages were computed in accordance with each item (category) in the checklist.

In view of the descriptive nature of the study, largely, the percentage system of data analysis was employed. Besides this, a chi-square (X^2) statistical test at alpha 0.05 level of significance was also used for categories 1 through 3. This is primarily because, many research questions in education and social sciences which deal with proportions or percentages of

occurrences in various categories are tested by chi-square statistics (X^2). This test is usually used to determine whether or not the difference between observed and expected frequencies (proportions) of various categories is significant (Hopkins and Glass, 1978:302-3). Then, whenever there was statistically significant difference within the item of a category, a pairwise chi-square (X^2) statistical test was employed at Alpha 0.05 level of significance so as to show where exactly the difference lies. Alpha 0.05 level of significance was selected because, it is neither too high nor too low (5 chances in 100 trails) for most social and educational research (Kerlinger, 1964:54).

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

In this chapter the data collected through classroom observation are presented with the help of tables and followed by analysis and interpretation to give answer for the four basic questions set in the study.

4.1. Boi-data of the Observed Teachers

It is clear that bio-data reveal the past and present status of individuals or groups so that a researcher can have a clear picture of population of the study. Such data would also enable the researcher to reach on the right findings of the study. See table 2 and its corresponding discussion regarding bio-data of the observed teachers in this study.

TABLE - 2

Bio-data of Observed Teachers

Sex	F	%	Years of Teaching experience	F	%	Qualification	F	%	Responsibilities	F	%	Training in both General Method and subject area Methodology		
													F	%
Male	14	87.5	10-15 Years	2	12.5	M.A	-	-	Teaching only	10	62.5	Yes	6	37.5
Female	2	12.5	16-20 years	4	25	B.A	13	81.25	Unit leader	1	6.25	No	10	62.5
			21-25 Years	7	43.75	Diploma	3	18.75	Club coordinator	2	12.5			
			26-30 Years	3	18.75	Any other	-	-	Dept. Heads	3	18.75			
Total	16	100		16	100		16	100		16	100		16	100

F: Frequencies

Table 2 depicts the distribution of observed teachers on the basis of different profiles. As shown in the table, the teachers significantly vary in their teaching experiences ranging from 10 to 30 years. About forty-four percent of the teachers (43.75 percent) are found to have teaching experiences of 21 to 25 years. Teachers whose service years are 16-20 and 26-30 consist of 25 percent and 18.75 percent respectively. Relatively less experienced teachers are whose service years are ranging from 10 to 15 years and they are about 12.5 percent.

About 13 teachers (81.25 percent) have a B.A. degree while 3 teachers (18.75 percent) are diploma holders in geography. Nevertheless, about 10 teachers (62.5 percent) lack training in both general methods and subject area teaching methods. It was also revealed that a few teachers are with certain responsibilities (unit leader, club coordinator, department head) besides their teaching tasks.

The above mentioned factors like years of teaching experience, qualification, additional responsibilities of teachers and their training patterns may have an impact on the effectiveness of teaching. The intent of this study, however, is not to investigate the effect of these factors on actual teaching. It is rather to explore whether teachers with the above mentioned profiles effectively use explanation technique so that certain conclusions may be made in the final analysis by comparing the findings and teachers' profiles indicated in the table.

TABLE - 3

The Extent to which Explanation is Used to teach subject Matter Content

Subject-matter contents	Frequency	%
Concepts	66	16.26
Rules and principles	40	9.85
Facts	240	59.11
Problems	38	9.36
Steps and Procedures	22	5.42
Total	406	100

It may be seen from table 3 that teachers explain various contents of subject-matter in varying emphasis. Facts were highly emphasized (59.11 percent) while steps and procedures

were the least emphasized content areas (5.42 percent). The occurence of explanations of concepts and problems is 16.26 percent and 9.36 percent respectively. Rules and principles as contents of the subject matter took 9.85 percent of the total explanatory encounters.

Based on the data depicted in the table, a chi-square statistical test was computed (see Appendix - c number 1 for calculations). The result shows that since the computed chi-square value (x^2 = 98.62) is by far greater than the critical chi-square value (X^2_4; 0.05 = 9.49), there is statistically significant difference in the extent of explaining concepts, rules and principles; facts, problems, and steps and procedures at $p<0.05$ level of significance. In other words, there is unequal treatment of contents by teachers during actual classroom instruction.

Hence, it seems pertinent to identify contents which are more emphasized as well as less emphasized by teachers during explanatory process. To do so, the pair wise comparison of data in table 3 was computed (see Appendix C number 2).

As a result, it was found out that the computed chi-square values pertaining to explaining concepts and facts; concepts, and steps and procedures; rules and principles and facts; facts and problems; and facts and steps and procedures are greater than the critical chi-square value (X^2_1; 0.05=3.84) at P,0.05 level of significance. This implies that there is statistically significant difference in the extent of

explaining the above mentioned contents indicated in pair wise comparison.

On the other hand, the computed chi-square values pertaining to explaining concepts and rules and principles; concepts and problems; rules and principles and problems; rules and principles and steps and procedures; and problems and steps and procedures are less than the critical chi-square value (X^2_1; 0.05=3.84) at P<0.05 level of significance. Thus, there is no significant difference in the extent of explaining these pairs.

Based on the data indicated in table 3 and the corresponding computed chi-square value results, one can make some sort of analysis and interpretations vis-a-vis available literature regarding teaching and examining of the subject-matter contents in actual classrooms. As to the extent of explanation made by teachers, the result indicated that factual presentations (59.11 percent) were found to be the most emphasized contents while explanations of steps and procedures were the least done. The extent of explaining concepts (16.26 percent), rules and principles (9.85 percent), and problems (9.36 percent) was also insignificant when compared with explaining of factual contents.

Nevertheless, a look at some recent literatures on the teaching effectiveness reveals that concepts, facts problems, rules, principles, and steps and procedures as contents of any subject matter for any grade level would

bring the desired change of behaviour in students if they are relatively given equal emphasis by the teacher right from the start of the lesson planning process (Cole and Chan, 1994). It is also further noted that it is what is contained in the lesson plan which can be reflected in real classrooms. Hence, a teacher must be clear of contents and make balance of them just beginning from the lesson planning process (Leonerd, et.al, 1972: 13). Jacobson et.al (1989) also further added that it is not worth telling students only factual aspects of the subject as the case depicted in table 3. It is rather important to develop facts into concepts by creating necessary relationship between and among facts. That is, concepts or abstractions can be formed by having learners process facts into recognizable patterns.

TABLE - 4

Necessary Skills in Making Explanation

Skills	Frequences	%
S_1 = Exemplification	104	35.99
S_2 = Questioning	38	13.15
S_3 = Reinforcement	35	12.11
S_4 = Demonstration through teaching materials	51	17.65
S_5 = Refocusing Skill	32	11.07
S_6 = Providing feedback	29	10.03
Total	289	100

Table 4 reveals that teachers employ various teaching skills while making explanation in the observed classrooms. The extent to which these skills were used ranges from 10.03 percent to 35.99 percent. That is the most frequently used skill (35.99 percent) was exemplification where as providing

feedback (10.03 percent) was the least employed teaching skill. The questioning skill was about 13.15 percent while reinforcement skill consists 12.11 percent of the total frequencies pertaining to explanation skills. Demonstration through the use of teaching materials and refocusing skills consist of 17.65 percent and 11.07 percent respectively.

It is evident, therefore, to prove that whether there is statistically significant difference in the employment of these skills or not. To do this, a chi-square statistical test was employed (see Appendix D number 1).

Hence, the calculated chi-square value (X^2=28.958) is by far greater than the critical chi-square value (X_5; 0.05 = 11.1) at P<0.05 level of significance. This implies that there is statistically significant difference in the employment of explanation skills. In other words, some skills are more emphasized than others during explanatory process.

In order to identify where exactly the difference lies in the employment of these skills, it seems worth to see the data in table 4 in pair-wise chi-square statistics (see Appendix D number 2). The result depicted that there was statistically significant difference in the use of S_1 and S_2; S_1 and S_3; S_1 and S_4; S_1 and S_5; S_1 and S_6 since in this case all the pair wise computations are greater than the critical chi-square value (X_1; 0.05=3.84) at P<0.05 level of significance. This may

further imply that the use of S_1 (exemplification skill) is the most emphasized of all other skills of explanation.

This is true that as indicated in table 4, 35.99 percent of teacher's use of explanation skills involves exemplification. It is of coures, unavoidable fact that examples are the basic components of most efficient explanation. This holds true when the use of examples involves physical objects, concret models, pictures, diagrams and verbal descriptions for explaining facts, concepts, principles or rules and procedures (Cole and Chan, 1994:128).

However, as far as this study is concerned, though the use of exemplification was found to be superior over employment of other explanation skills, the most dominating aspects of giving examples were only verbal descriptions. In line with this, Cole and Chan (1994: 13) said:

> Students are often critical of teachers who use only examples of verbal descriptions. They complain that they are too abstract and uninteresting. Most students prefer teachers who use diagrams, concret models, and real life objects in explanation.

Therefore, since examples of verbal descriptions are too abstract, they are unable lack to bring about meaninfgulness of explanation on the part of learners. An explanation is meaningful if students are able to perceive and understand the association between subject-matter and examples. It has to be noted that "meaningfulness is the critical dimension of all classroom explanations." (Ibid: 133).

A further look into the data of table 4 and its corresponding pair-wise chi-square calculations in Appendix-D number 2 also reveals that there is no significant difference in the use of other explanation skills. For instance, one can see statistically insignificant difference between the use of questioning skill (S_2) and providing feedback (S_6) since in this case calculated chi-square value (X^2=0.42) is less than the critical chi-square value (X^2_1; 0.05=3.84) at $p<0.05$ level of significance. This fact accord with the finding reached on the basis of data indicated in table 3 earlier. That is, as already found out in table 3, most of the explanatory activities of teachers were emphasized on presenting factual contents with less emphasis on relating facts to form concepts. It was also found out that explanations of rules and principles, problems, and steps and procedures were not as such given due consideration. Therefore, in the teaching atmosphere where factual presentation of contents is dominating, it is likely that the use of questioning skill that goes hand in hand with the skill of providing feedback will be minimal.

TABLE 5

SOME TACTICAL ELEMENTS OF TEACHING EMPLOYED BY TEACHERS IN MAKING EXPLANATION.

TACTICAL ELEMENTS OF TEACHING	Frequency	%
TE_1 = Focusing students attention	86	30.94
TE_2 = Varying Stimulus	82	29.49
TE_3 = Emphasizing difficult points	81	29.14
TE_4 = Creating links between varying facts, concepts, etc.	29	10.43
Total	278	100

As indicated in table 5, the prevalence of some tactical elements of teaching ranges from 10.43 percent to 30.94 percent. The tally marks showed that 30.94 percent of the tactical elements of teaching shown by teachers were focusing students attention on the learning task. 29.49 percent was found to be varying stimulus and 29.14 percent was emphasizing difficult points of the lesson. Only 10.43 percent of the total tallies was creating links between varying facts, concepts, etc.

TE= Tactical Elements

Here, it was found important to show that whether there is statistically significant difference in the application of these tactical elements of teaching while teachers were explaining the lessons. To this effect, a Chi-square statistical test was computed (see Appendix - E number 1). The result showed that the calculated chi-square value (X^2 = 11.4) is greater than critical chi-square value (X_3^2; 0.05= 7.81) . Hence, there is statistically significant difference in the manifestations of tactical elements of teaching at $P < 0.05$ level of significance.

In order to see a clear picture of differences in the use of these tactical elements a pair-wise chi-square calculations was computed (see Appendix -E number 2). The result indicated that there was significant differences between TE_1, and TE_4; TE_2 and TE_4, TE_3 and TE_4 since all the calculated chi-square values of this pairs are greater than the critical chi-square value (X^2_1; 0.05= 3.84) at $P < 0.05$ level of significance.

As can be seen from the table therefore, creating links between varying facts, concepts, etc. is significantly different from other teaching tactics and it is the least (10.43 percent) employed one. It is clear that creating links between different aspects of the lesson is one of the good tactics of effective teaching at large and effective explanation in particular. Perrott (1982:22) noted that creating links provides a smooth transition from known to unknown material. This is often achieved by question and

answer session on the topic covered in the last lesson and by providing a linkage with the current topic.

However, as far as the teachers' teaching quality pertaining to setting transition from one aspect of the lesson to another, little effort was made. This of course concides with the earlier findings depicted under table 3 and 4 that most of the explanatory patterns were factual prasentations where questioning skill and providing feed back were not so much employed.

The data in table 5 also further indicated that focusing students attention on the learning task (TE_1) was found to be the most prevailing of the total tallies (30.94 percent). And it was also noted that there was no significant difference between TE_1, TE_2, and TE_3 as they were seen during the teachers' explanatory activities.

Though these tactical elements (TE_1, TE_2, and TE_3) are the most prevailing ones in the total tallies, teachers'use of them was not integrative, attractive and imaginative. The researcher could observe that these tactical elements were employed by teachers in the form of order or command rather than in the form of creating links in various contents. They were found creating confusion rather than developing interest in the learners. In order to focus students attention on the lesson, for instance, most of the teachers were found saying "Look! Listen!" with out creating appropriate link of these focusing behaviors to the intent of the lesson.

It was also observed that the most frequently practised tactic of teaching in stimulus variation was a mere occasional movement of the teacher from one corner to the other which was not integrated with verbal focusing behavior. With this point, Perrott (1982;29) mentions that random nervous movements, such as pacing up and down can irritate and interrupt rather than improve communication.

Table 6

TYPES OF EXPLANATION USED BY TEACHERS

Explanation Type	Frequency	%
Interpretive	76	15.17
Descriptive	250	49.90
Rational (reason giving)	52	10.38
Analogical	23	4.59
Functional	34	6.79
Cause and Effect	66	13.17
Total	501	100

A profile of the explanation types used by teachers indicated in table 6 above provides a frame of reference from which some discussions could be made. Of the total of 501 explanatory encounters revealed in the table, 49.90 percent which is approximately half of the total tallies was found to be descriptive explanation. Only about 15.17 percent of the explanatory incidents was categorized as interpretive type of explanations. Rational (reason giving) explanation was about 10.38 percent while cause and effect explanation appeared to be 13.17 percent of the total tallies. Analogical and functional explanations were almost rarely utilized which respectively represent 4.59 and 6.79 percents.

The question of whether or not these explanations were scientifically valid in any sense was not a question which this study addressed and it will remain open. Closer to the focus of interest of the study is the fact that the types of explanation used by teachers varied considerably. A lack of uniformity was observed in the use of explanation types as precisely depicted in the table . That is, the frequency ranged from 4.59 percent (analogical) to 49.9 percent (descriptive).

It was noted earlier in chapter two that descriptive explanations describe factual contents and pinpoint structural schemes. Related to this, the finding which was drawn from data in table 3 indicated that most of the teachers' explanatory activities were more of describing factual contents of the subject-matter. Therefore, it is not surprising if the frequency of descriptive explanation is found to be superior over other types.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The purpose of the study was to investigate effective use of explanation technique by geography teachers in selected secondary schools in addis Ababa. In order to achieve this purpose. The following four basic questions were raised and their answers sought in the course of the investigation.

1. To what extent do teachers use explanation in teaching subject-matter contents?
2. What skills do teachers employ in making explanation?
3. What are some tactical elements of teaching employed by teachers in the process of making explanation?
4. What are the most frequently used explanation types?

To this effect, sixteen geography teachers were purposely selected from four secondary schools. Classroom observation was the data gathering instrument used to obtain information from sample teachers while they were teaching. Hence, on the basis of the analysis made of the data secured through this instrument, the major findings of the study are summarized as follows.

1. It may be inferred from the findings that though most of the teachers have long years of teaching experience, they lack appropriate training in both general as well as subject area methods of teaching (Table - 2).

2. In line with the extent of teacher's use of explanation in teaching different contents, the study revealed that most of the explanatory activities were full of presenting factual contents (59.11 percent). On the other hand, the extent of explaining concepts, rules, problems, and steps and procedures was found to be less emphasized (Table - 3).

3. Of all explanation skills employed by teachers, exemplification was found to be the most dominantly used (35.99 percent). However, the content of exemplification was limited to verbal descriptions which may probably lack bringing about meaningfulness of explanation as well as understanding on the part of the learners. Furthermore, other explanation skills like questioning, reinforcement, refocusing skills and providing feedback were not appropriately used so as to facilitate explanation (Table - 4).

4. Tactical elements of teaching like focusing students attention on the learning task, varying stimulus and

emphasizing difficult points were found to be the most prevailing ones. But random and occasional use of these tactical elements was dominantly observed.

5. A profile of explanation types seen in table 6 revealed that descriptive explanation was the most frequently used explanation type. This is may be due to the fact that most of the lesson contents were facts which in one way or another may lead the teacher to descriptive presentations.

5.2 Conclusion

1. From the findings, it can be concluded that teachers lack necessary skills that may enable them to select and plan different ingredients of the subject-matter in at least approximate balances. As a result, only one aspect of the Subject-matter contents (i.e., teaching of facts) has been superior over other content areas.

2. The intent of explanation which is facilitating understanding of learners can be achieved by using important skills of explanation. Since the use of these skills was not found appropriate from the findings, it is likely that students might not have understood the intent of lessons.

3. It is clear that students long-range memory and comprehension ability is the result of concept learning and generalizations. However, teachers fail to show the quality of creating appropriate linkage between varying content areas. Therefore, the cognitive ability of students may be limited to simple recalling of facts for short period of time.

4. In general, the findings indicated that teachers seem ineffective in selecting and explaining contents, in using necessary skills and employing tactical elements of teaching appropriately. All these may be attributed to the teacher' lack of necessary training in basic pedagogical knowledge and skills from the very beginning.

5.3 Recommendations

In the light of the findings of the study, it seems reasonable to suggest the following recommendations.

1. The investigation revealed that teachers' over all use of explanation technique to facilitate learning lacks uniformity in selecting necessary skills and determing appropriate teaching tactics. This may be the result of lack of appropriate training of teachers for the profession. Hence, it seems advisable to organize refresher seminars and

workshops on basic pedagogical courses for the working teachers.

2. It is clear that the training mechanism of teacher trainees may have an impact on the future role of teacher graduates. Therefore, the ongoing training of teachers in both preservice and inservice programs should give due consideration to inculcate the importance of methodology of teaching at large and explanation technique in particular in the minds of trainees through long periods of practice teaching.

3. Finally, it has to be noted that explanations will unequally differ depending on the context in which they occur. Further, the properties of explanation are interrelated and resourceful teachers combine and recombine them in an infinite number of ways. Therefore, interested researchers (particularly teacher educators) can take up this issue and investigate in another discipline to see the practices of other teachers in using explanation technique.

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APPENDIX - A

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF EDUCATION

DEPARTMENT OF CURRICULUM AND INSTRUCTION

OBSERVATION CHECKLIST FOR EFFECTIVE USE OF EXPLANATION TECHNIQUE

1. **INTRODUCTION**:- This observation checklist is designed to record data that are pertinent to the effective use of explanation technique by geography teachers in selected secondary schools in Addis Ababa. The checklist consists of four major parts which all together embrace a total of 21 categories. The information to be gathered through the observation schedule is to be used for the purpose of providing accurate picture of the application of explanation technique. Hence, as an observer, you are expected to record exact information based on the direction given below.

2. **DIRECTION**:

   a. Complete the information at the top of the checklist before beginning the observation

b. The categories to be recorded are clearly stated in the checklist. Tally the presence of each category in the space provided every time it occurs during the whole observation period.

c. If a teacher to be observed teaches in more than one grade (say grade 9 and 10) choose either of the grades for observation and record your observation of that grade.

d. Don't Write the name of the observed teacher.

3. Name of the School _____

4. Biodata of the teacher to be observed:

   a. Sex _____

   b. Years of experience in teaching (tick '**x**' mark in the box)

      10 - 15 [ ]

      16 - 20 [ ]

      21 - 25 [ ]

      26 - 30 [ ]

   c. Qualification (tick "x" mark in the box)

      M.A. [ ]

      B.A. [ ]

      Diploma [ ]

      Other [ ]

      Please Specify _____

d. Training in both General methods and subject area methods of Teaching (tick "x" mark in the box)

Yes [ ]

No [ ]

5. Other responsibilities the teacher shoulders in the school _____

_____

_____.

6. Various Categories of Explanation Technique

No.	Categories	Tally mark	No. of Tallys	Percentage
1	The extent to which explanation is made by the teacher to teach: 1.1 Concepts 1.2 Principles & Rules 1.3 Facts 1.4 Problems 1.5 Steps and procedures			
2	Necessary skills in the use of explanation; 2.1 Exemplification 2.2 Questioning 2.3 Reinforcement 2.4 Demonstration by using Instructional Materials 2.5 Refocusing Skill 2.6 Providing Feedback			
3	The main tactical elements of teaching employed by teachers in making explanation; 3.1 Focusing students attention on the learning tasks 3.2 Varying stimulus 3.3 Emphasizing difficult points 3.4 Create links between varying concepts, ideas, etc.			
4	The types of explanation used by teachers: 4.1 Interpretive 4.2 Descriptive 4.3 Rational (reason giving) 4.4 Analogical 4.5 Functional 4.6 Cause and effect			

APPENDIX - B (1-4)

Computation of correlation Coefficient of scores Recorded By Each Observer During the Tryout to Determine the Reliability of the Instrument.

1. Grade - 9
Observer - 1

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	2	3
1.2	3	4
1.3	1	1
1.4	6	7
1.5	0	1
1.6	0	0
1.7	0	0
2.1	3	4
2.2	3	3
2.3	5	4
2.4	0	0
2.5	0	2
2.6	2	0
3.1	0	0
3.2	0	4
3.3	3	0
3.4	0	0
3.5	3	3
3.6	0	0
3.7	0	0
3.8	0	0
4.1	1	2
4.2	7	6
4.3	4	5
4.4	1	1
4.5	0	0
4.6	0	0
4.7	0	0
4.8	4	4

$N = 29$
$\Sigma S_1 = 48$
$\Sigma S_2 = 54$
$\Sigma S_1S_2 = 208$
$\Sigma S_1^2 = 198$
$\Sigma S_2^2 = 228$

Then, by substituting these values in person product moment of computing correlation Coefficient, i.e,

$$r_1 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_1 = \underline{0.97}$

N.B. S_1 and S_2 in the formula respectively represent session$_1$ and Session $_2$ in all cases.

Observer - 2

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	3	4
1.2	4	5
1.3	3	3
1.4	3	4
1.5	0	0
1.6	0	0
1.7	0	2
2.1	8	10
2.2	10	12
2.3	5	5
2.4	0	0
2.5	3	4
2.6	0	2
3.1	1	2
3.2	2	3
3.3	0	0
3.4	1	1
3.5	2	2
3.6	0	0
3.7	0	0
3.8	2	3
4.1	0	1
4.2	1	0
4.3	3	4
4.4	0	0
4.5	3	3
4.6	0	0
4.7	0	0
4.8	3	5

N = 29
$\Sigma S_1 = 57$
$\Sigma S_2 = 75$
$\Sigma S_1S_2 = 345$
$\Sigma S_1^2 = 286$
$\Sigma S_2^2 = 438$

Then, by substituting these values in person product moment formula,

$$r_2 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_2 = \underline{\underline{0.96}}$

Observer - 3

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	1
1.2	2	3
1.3	0	0
1.4	4	6
1.5	0	0
1.6	0	0
1.7	0	0
2.1	2	4
2.2	10	12
2.3	0	3
2.4	5	5
2.5	0	0
2.6	7	8
3.1	5	7
3.2	1	3
3.3	1	1
3.4	2	2
3.5	2	2
3.6	2	4
3.7	2	2
3.8	0	0
4.1	0	0
4.2	3	4
4.3	0	0
4.4	2	2
4.5	0	0
4.6	0	0
4.7	0	0
4.8	1	2

N= 29
$\Sigma S_1 = 51$
$\Sigma S_2 = 71$
$\Sigma S_1S_2 = 316$
$\Sigma S_1^2 = 255$
$\Sigma S_2^2 = 403$

$$r_3 = \frac{n(\sum S_{S_2}) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

r_3 = 0.98
Hence, interrater Correlation Coefficient of grade 9 is :-

$$r = \frac{r_1 + r_2 + r_3}{3}$$

r= 0.97

Grade - 10
Observer - 1

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	1	1
1.2	1	1
1.3	0	0
1.4	8	8
1.5	0	0
1.6	0	0
1.7	0	0
2.1	1	2
2.2	5	6
2.3	0	0
2.4	0	0
2.5	1	2
2.6	0	0
3.1	0	0
3.2	1	3
3.3	0	0
3.4	2	4
3.5	2	2
3.6	0	0
3.7	1	1
3.8	0	0
4.1	1	1
4.2	6	7
4.3	2	2
4.4	0	0
4.5	2	3
4.6	0	0
4.7	1	1
4.8	2	2

N= 29
$\Sigma S_1 = 37$
$\Sigma S_2 = 46$
$\Sigma S_1S_2 = 174$
$\Sigma S_1^2 = 153$
$\Sigma S_2^2 = 208$

Then,

$$r_1 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2]}}$$

$r_1 = \underline{0.96}$

1. Grade - 9
Observer - 1

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	0
1.2	6	6
1.3	0	0
1.4	7	8
1.5	0	0
1.6	0	0
1.7	2	2
2.1	3	5
2.2	7	8
2.3	4	4
2.4	4	6
2.5	2	5
2.6	0	0
3.1	1	1
3.2	0	0
3.3	0	0
3.4	1	1
3.5	0	0
3.6	2	4
3.7	1	1
3.8	2	2
4.1	0	0
4.2	3	3
4.3	2	4
4.4	0	0
4.5	0	0
4.6	0	0
4.7	0	0
4.8	.2	2

N= 29
$\Sigma S_1 = 49$
$\Sigma S_2 = 62$
$\Sigma S_1S_2 = 253$
$\Sigma S_1^2 = 211$
$\Sigma S_2^2 = 322$

Then,

$$r_2 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2]}}$$

r = 0.95

Observer - 3

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	0
1.2	2	4
1.3	4	4
1.4	6	9
1.5	0	0
1.6	0	0
1.7	2	2
2.1	0	0
2.2	10	12
2.3	0	0
2.4	0	0
2.5	2	3
2.6	1	1
3.1	6	8
3.2	0	0
3.3	0	0
3.4	2	2
3.5	0	2
3.6	0	0
3.7	1	1
3.8	0	0
4.1	1	0
4.2	5	7
4.3	1	1
4.4	1	1
4.5	0	0
4.6	0	0
4.7	0	0
4.8	4	0

N= 29
$\Sigma S_1 = 43$
$\Sigma S_2 = 57$
$\Sigma S_1S_2 = 299$
$\Sigma S_1^2 = 233$
$\Sigma S_2^2 = 395$

Then,

$$r_3 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_3 = \underline{0.98}$

Hence, interrater Correlation Cofficent of grade 10 is :

$$r = \frac{r_1 + r_2 + r_3}{3}$$

r= 0.96

1. Grade - 11
Observer - 1

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	0
1.2	0	0
1.3	0	0
1.4	5	6
1.5	0	0
1.6	0	0
1.7	4	7
2.1	0	0
2.2	1	1
2.3	1	1
2.4	0	0
2.5	2	4
2.6	0	0
3.1	0	0
3.2	0	0
3.3	0	0
3.4	0	0
3.5	0	0
3.6	0	0
3.7	2	3
3.8	0	0
4.1	0	0
4.2	5	6
4.3	2	4
4.4	0	0
4.5	0	0
4.6	0	0
4.7	0	0
4.8	2	4

N= 29
$\Sigma S_1 = 24$
$\Sigma S_2 = 36$
$\Sigma S_1S_2 = 120$
$\Sigma S_1^2 = 84$
$\Sigma S_2^2 = 180$

Then,

$$r_1 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2]}}$$

$r_1 = \underline{0.97}$

Observer - 2

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	2	2
1.2	0	0
1.3	0	0
1.4	3	5
1.5	1	1
1.6	0	0
1.7	1	3
2.1	0	0
2.2	3	5
2.3	0	0
2.4	1	1
2.5	1	3
2.6	0	0
3.1	2	3
3.2	0	0
3.3	0	0
3.4	0	0
3.5	0	0
3.6	0	0
3.7	5	7
3.8	0	0
4.1	2	3
4.2	3	3
4.3	0	0
4.4	0	0
4.5	2	3
4.6	0	0
4.7	0	0
4.8	3	5

N= 29
$\Sigma S_1 = 29$
$\Sigma S_2 = 44$
$\Sigma S_1S_2 = 119$
$\Sigma S_1^2 = 81$
$\Sigma S_2^2 = 184$

Then,

$$r_2 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_2 = \underline{\underline{0.96}}$

Observer - 3

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	0
1.2	0	0
1.3	3	3
1.4	11	13
1.5	0	0
1.6	0	0
1.7	0	0
2.1	0	0
2.2	5	5
2.3	0	0
2.4	0	0
2.5	0	0
2.6	0	0
3.1	0	0
3.2	0	0
3.3	0	0
3.4	1	3
3.5	0	0
3.6	0	0
3.7	8	10
3.8	0	0
4.1	0	0
4.2	6	6
4.3	3	5
4.4	0	0
4.5	0	0
4.6	0	0
4.7	0	0
4.8	0	0

N= 29
$\Sigma S_1 = 37$
$\Sigma S_2 = 45$
$\Sigma S_1S_2 = 311$
$\Sigma S_1^2 = 265$
$\Sigma S_2^2 = 373$

Then,

$$r_3 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_3 = \underline{\underline{0.99}}$

Hence, interrator Correlation Coefficient of grade 10 is:

$$r = \frac{r_1 + r_2 + r_3}{3}$$

$r = \underline{\underline{0.97}}$

4. Grade -12
Observer - 1

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	0	0
1.2	0	0
1.3	0	0
1.4	6	5
1.5	0	2
1.6	0	0
1.7	0	2
2.1	0	0
2.2	4	6
2.3	0	0
2.4	0	0
2.5	1	2
2.6	0	0
3.1	0	0
3.2	0	0
3.3	0	0
3.4	3	3
3.5	0	0
3.6	3	5
3.7	1	1
3.8	0	0
4.1	2	2
4.2	9	9
4.3	1	0
4.4	0	0
4.5	2	2
4.6	0	0
4.7	0	0
4.8	1	1

N= 29
$\Sigma S_1 = 33$
$\Sigma S_2 = 40$
$\Sigma S_1S_2 = 17$
$\Sigma S_1^2 = 163$
$\Sigma S_2^2 = 198$

Then,

$$r_3 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_3 = \underline{\underline{0.93}}$

Observer - 2

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	1	1
1.2	0	0
1.3	0	0
1.4	10	12
1.5	0	0
1.6	0	0
1.7	0	0
2.1	0	0
2.2	3	5
2.3	2	2
2.4	0	0
2.5	0	0
2.6	0	0
3.1	1	1
3.2	1	1
3.3	0	1
3.4	0	2
3.5	0	0
3.6	1	1
3.7	5	7
3.8	0	0
4.1	0	0
4.2	12	10
4.3	0	0
4.4	0	0
4.5	6	6
4.6	0	0
4.7	0	0
4.8	0	0

N= 29
$\Sigma S_1 = 42$
$\Sigma S_2 = 49$
$\Sigma S_1S_2 = 334$
$\Sigma S_1^2 = 322$
$\Sigma S_2^2 = 367$

Then,

$$r_2 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_2 = \underline{\underline{0.96}}$

Observer - 3

Items	Session$_1$ (S_1)	Session$_2$ (S_2)
1.1	1	1
1.2	0	0
1.3	1	1
1.4	3	5
1.5	0	0
1.6	0	0
1.7	0	0
2.1	0	0
2.2	3	3
2.3	1	1
2.4	0	0
2.5	0	1
2.6	0	0
3.1	0	0
3.2	2	5
3.3	0	2
3.4	1	1
3.5	0	0
3.6	0	0
3.7	5	5
3.8	0	0
4.1	0	0
4.2	5	8
4.3	0	0
4.4	0	0
4.5	2	4
4.6	1	1
4.7	0	0
4.8	0	0

N = 29
$\Sigma S_1 = 24$
$\Sigma S_2 = 38$
$\Sigma S_1S_2 = 112$
$\Sigma S_1^2 = 81$
$\Sigma S_2^2 = 174$

Then,

$$r_3 = \frac{n(\sum S_1S_2) - (\sum S_1)(\sum S_2)}{\sqrt{[n\sum S_1^2 - (\sum S_1)^2][n(\sum S_2^2) - (\sum S_2)^2}}$$

$r_3 = \underline{0.92}$

Hence, interrator Correlation Coefficient of grade 12 is:

$$r = \frac{r_1 + r_2 + r_3}{3}$$

$r = \underline{0.94}$

2. A pair wise calculations of chi-square for the extent of using explanation in teaching different contents.

CONTENTS	FREQUENCIES					
	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$	X^2
CONCEPTS RULES & PRINCIPLES	16.26 9.85	13.055 13.055	3.205 -3.205	10.27 10.27	0.787 0.787	1.574
CONCEPTS FACTS	16.26 59.11	37.685 37.685	-21.425 21.425	459.03 459.03	12.18 12.18	24.36
CONCEPTS PROBLEMS	16.26 9.36	12.81 12.81	3.45 -3.45	11.90 11.90	0.93 0.93	1.86
CONCEPTS STEPS & PROCEDURES	16.26 5.42	10.84 10.84	5.42 -5.42	29.38 29.38	2.71 2.71	5.42
RULES & PRINCIPLES FACTS	9.85 59.11	34.48 34.48	-24.63 24.63	606.64 606.64	17.59 17.59	35.18
RULES & PRINCIPLES PROBLEMS	9.85 9.36	9.605 9.605	0.245 -0.245	0.06 0.06	0.063 0.063	0.126
RULES & PRINCIPLES STEP & PRODUCERES	9.85 5.42	7.64 7.64	2.21 -2.21	4.88 4.88	0.63 0.63	1.26
FACTS PROBLEMS	59.11 9.36	34.235 34.235	24.875 -24.875	618.77 618.77	18.07 18.07	36.14
FACTS STEPS & PRODUCERES	59.11 5.42	32.265 32.265	26.845 -26.845	720.65 720.65	22.34 22.34	44.65
PROBLEMS STEPS & PRODUCERES	9.36 5.42	7.39 7.39	1.97 -1.97	3.88 3.88	0.53 0.53	1.06

df = 2-1 = 1; then X^2 ; 0.05 = 3.84

APPENDIX -E

1. A Chi-square calculations for the employment of tactical elements of teaching.

Tactical Elements	FREQUENCIES				
	O	E	O-E	$(O-E)^2$	$(O - E)^2 / E$
TE_1	30.94	25	5.94	35.28	1.41
TE_2	29.49	25	4.49	20.16	0.81
TE_3	29.14	25	4.14	17.14	0.69
TE_4	10.43	25	-14.57	212.28	8.49

$$X^2 = \sum \frac{(O-E)^2}{E} = 11.4$$

df = 4-1=3; then, critical chi-square value (X_3^2; 0.05 = 7.81)

DECLARATION

I, hereby declare that this thesis is my original work done under the guidance of Dr. Azeb Desta, Dean, Faculty of Education. All relevant sources used are duly acknowledged.

Elias Nasir.